

FAA-E-2592a

SUPPLEMENT 1

FINAL

DEC 1982

DEPARTMENT OF **TRANSPORTATION**

FEDERAL AVIATION ADMINISTRATION SPECIFICATION

MOSAIC SOFTWARE FOR

EN-ROUTE AUTOMATED **RADAR TRACKING SYSTEM(EARTS)**

This supplement forms a part of specification **FAA-E-2592a** dated **July 1, 1976**, when **so** specified in specifications, requests for proposals, invitations **for** bids **or** contracts.

INTRODUCTION .

1.1 PURPOSE

The original design of the **EARTS system** allowed for five radars with the capability to expand to a maximum configuration of **15** radars; however, in this configuration, at least one display is required for each radar. The **EARTS** shall have the capability to receive radar data from up to **15** sensors, and, furthermore, present the **data** from multiple radars on a single display. This expansion will require more system resources such as processors **and** memory in order to perform the functions of tracking and display output. There is an urgent requirement to implement a form of the **NAS** mosaic software concept into **EARTS** and be able to **track** and display **in a** mosaic manner. For commonality, this mosaic software will be utilized at all **EARTS** facilities.

1.2 SCOPE

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DOCUMENTATION

2.1 GOVERNMENT SPECIFICATIONS AND STANDARDS

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| (a) FAA-E-2592a | EARTS Specification, July 1, 1976 |
| (b) NAS-MD-320 | Multiple Radar Data Processing, December 17, 1980 |
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| (h) NASP-5105-15 | NAS En Route Stage A - Application Subsystems,
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| (i) NASP-5149-17 | NAS En Route Stage A, Subsystem Design Data,
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The **RTQC** function will contain the following set of six tasks:

- (1) Status Message Monitoring-The monitoring of the **status messages** from the CD in order to detect if **any** status messages changes, messages were excessive or messages- were **missing**.
- (2) Test Message Monitoring-The monitoring of test messages from the CD in order to determine missing conditions, excessive conditions or the correctness of the fixed beacon test and fixed primary test **messages** received from each site.
- (3) Radar Data counts-The analysis of radar data counts in order to detect missing or excessive numbers of radar data or excessive numbers of radar data error conditions.
- (4) Registration Analysis-The calculation of registration errors between discrete beacon **returns** and the **true target** positions for a radar site.
- (5) Collimation Analysis-The calculation of collimation errors between primary and beacon returns on the same target for a radar site.
- (6) Permanent Echo Verification-The calculation of errors between the adapted physical location of permanent echo target **and the** location of their associated radar returns for a radar site.

3.3.1.4 SCAN ORIENTED QUALITY CONTROL(SOQC)

what is failed radar

This function monitors radar inputs and checks for missing, excessive and erroneous **data**. Whenever a failed radar is detected, this **SOQC** information shall be immediately passed onto and printed out on the CDT **SMS**. information shall indicate which **radar/subchannel** has failed. **Radar/subchannel** printout format will conform with printout **requirements** contained in paragraph **3.22** and paragraph **3.23** of this supplement. Upon **return** to normal operating condition of a previously failed radar, the radar sort box radar **assignments(i.e., preferred, supplementary)** are adjusted. Reestablishment of a preferred radar which has failed will be made only through **manual** supervisory keyboard entry from the console data terminal **system** monitor station.

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3.6.13 DISPLAY OF STATION ALTIMETER

The **number** of station altimeters, up to **seven(7)** per display position **shall be** available for display **and shall be defined in site adaptation**. 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In the current **EARTS** system, radar trackball coordinates refer to a sensor orientation on **each** display. In the Mosaic **EARTS** system, radar trackball coordinate data **refer** to a system coordinate orientation. **Home** position of the slew ball shall be the display center, regardless of the position of the range select switch or off-set.

The **EARTS** automatic **home** feature of the trackball symbol which occurs upon completion of slew to a point and keyboard entry of **"enter"** shall be modified so that the symbol does not return to center of the **PVD** but remains at last point of slew.

3.7.2 RADAR SORT BOX(RSB) DISPLAY

Functional requirement **exists** for **supervisory PVD** keyboard entry to request radar sort box related data. That data shall be displayed in **the** readout area of the entering supervisory **positon**. The following data will be included in the readout:

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The **number** of station altimeters, up to **seven(7)** per display position **shall be** available for display and **shall be defined in site adaptation.** Controller shall be able to inhibit or select any or all of these seven (7) altimeters from his/her display.

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3.11 PROGRAM ADAPTATION FOR INTERFACILITY COMMUNICATIONS

Interfacility communications shall be incorporated into the mosaic software program, **Mosaic EARTS** shall be **able** to **interface** with **ARTS II and ARTS III. Also, NAS** Stage-A en-route centers shall be able to interface with **EARTS**. Documentation, listing and source tapes describing the interfacility **communications software** program to be incorporated into mosaic **EARTS** shall be provided by FAA to **the** contractor at contract award. See Appendix C

3.12 CERTIFICATION

Contractor shall implement the features of system certification identified at Appendix **B**. Source listings shall be provided contractor. Those certification performance functions described at Appendix B shall be adapted by the contractor **in** order to properly interface with mosaic **EARTS**.

3.13 ASSISTANCE TO SEARCH AND RESCUE

This function will use **the** existing continuous data **recording(CDR)** system. The **CDR** editor will be used to search through **CDR** for a specific set of target reports **or** series of target reports. The received target report shall be used in the generation of the plots. A graphic plot of target data **will** be presented on the medium speed **printer(MSP)** using system coordinates to show the last reported target report and **prediction** of possible aircraft location. An extract and plot of fixes from the gee-map may be used as an aid to making the search and rescue function . **more usable**. This shall be an off-line program.

3.14 MSP AND CDT PRINT-OUT CAPABILITY

Appendix D lists details of types of data to be printed on **MSP** and on CDT.

3.15 CDT SMS CAPABILITY

See Appendix E for details.

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Contractor **shall** implement the features of system certification identified at Appendix **B**. Source listings shall be provided contractor. Those certification performance functions described at Appendix B shall be adapted by the contractor **in** order to properly interface with mosaic **EARTS**.

3.13 ASSISTANCE TO SEARCH AND RESCUE

This function will use **the** existing continuous data **recording(CDR)** system. The **CDR** editor will be used to search through **CDR** for a specific set of target reports or series of target reports. The received target report shall be used in the generation of the plots. A graphic plot of target **data** will be presented on the medium speed **printer(MSP)** using **system** coordinates to show the last reported target report and **prediction** of possible aircraft location. An extract and plot of fixes from the **geo-map** **may** be used as an aid to making the search and rescue function . more usable. This shall be **an** off-line program.

3.14 MSP AND CDT PRINT-OUT CAPABILITY

Appendix D lists details of types of data to be printed on **MSP** and on CDT.

3.15 CDT SMS CAPABILITY

See Appendix E for details.

3.16 INTEGRATED INTERFACE **TEST(IIT)** ERROR CODES

See Appendix F for details.

3.11 PROGRAM ADAPTATION FOR INTERFACILITY COMMUNICATIONS

Interfacility communications shall be incorporated into the mosaic software program, Mosaic **EARTS** shall be able to interface with ARTS II and ARTS III. Also, **NAS** Stage-A en-route centers shall be able to interface with **EARTS**. Documentation, listing and source tapes describing the interfacility **communications** software program to be incorporated into mosaic **EARTS** shall be provided by FAA to the contractor at contract award. See Appendix C

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See Appendix F for details.

The failing RRA would be enabled after a parameter of seconds to determine if the error situation had **cleared** up. If **the RRA** did not exceed the disabling parameter and the error situation was remedied, a printout of **"RRA m, SENSOR n ENABLED"** would be **sent to the** CDT, the RRA would be initialized and data flow associated with that sensor would commence. If **the RRA did exceed the** disabling parameter a second time, then the RRA would be disabled and a printout of **"DISABLE RRA m FAIL, SENSOR n"**. Automatic disabling requires manual operator intervention to **reenable the** adapter. Operator intervention **to** disable the RRA shall override the logic outlined above.

3.24 MISCELLANEOUS

The capability shall be provided to **simultaneous** record on **CDR(continuous** data recording) tracking **data(TD)** with either the active track **file(AC)** or the flight **data file(FC)**. Since the impact of simultaneously recording these items would result **in** more rapidly using the available space set aside for continuous data recording, the capability will be provided to select or inhibit this option.

The on-call capability shall be provided which displays **on PVD a count** of the **number** of CD, **ARSR-3 DTE**, or MAR digitizer created test targets at a specified **range, as well as** displaying the test targets, which are used as the basis for **narrow-band** radar system **MDS**. Normally a radar system **MDS** is accomplished on a weekly basis or when it is believed that the radar system **has** degraded below **normal** levels. This requires a signal **input to create 32 test** targets. The signal **is** reduced until only **16 targets** are displayed. It is difficult to visually count the targets let alone know when one scan has been completed. Output to the sensor oriented **PVD** will be **"periods"** at full brightness for **radar only** targets **current position and a count of target reports/scan.** The **PVD** will be assigned to the **sensor** subject to **MDS activity.** **Only one sensor may have** this function performed at a given time.

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APPENDIX A(CONTD)

Test: Test Message status	MXRL: Maximum Run Length Discrimination On
FAA: Message Used by FAA	MNRL: Minimum Run Length Discrimination On
AF: Message Used by Air Force	ASA: Azimuth/Servo Alarm
SRC: Radar Channel(1=A, 0=B)	NMO: Norma! Map On
SBC: Beacon Channel(1=A, 0=B)	SMO: Sensitive Map On
CDA: CD Processing Alarm	WFO: WFMU On
OBA: On-Line Beacon Alarm	WFA: WFMU Alarm
BO: ½ NMI Beacon Offset	DRO: Dynamic Run Length On
AIM: AIMS Alarm	HST: High Speed Timing
CP: Circular Polarization	HSI: Half Scan Inhibit
SBA: Standby Beacon Alarm	BOV: Buffer Overload
ORA: On-Line RBPM Alarm	CGM: Clutter-Gated MTI On
OS: Output Service	DC3: Data Channel 3 On
● HPG: HPG Alarm	DC2: Data Channel 2 On
SO: System Overheat	DC1: Data Channel 1 On
MTA: Military Timing Alarm	
MIMA: MIM Alarm	
BRA: Beacon RTQC Alarm	
SRA: Search.RTQC Alarm	
RA: Range Alarm	
SD:	Bit Pattern
	21 20
ACE Off	0 0
ACE 1	1 0
ACE 2	0 1
ACE 3	1 1

APPENDIX A(CONTD)

Test: Test Message status

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CDA: CD Processing Alarm

OBA: On-Line Beacon Alarm

BO: ½ NMI Beacon Offset

AIM: AIMS Alarm

CP: Circular Polarization

SBA: Standby Beacon Alarm

ORA: On-Line RBPM Alarm

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● **HPG:** HPG Alarm

SO: System Overheat

MTA: Military Timing Alarm

MIMA: MIM Alarm

BRA: Beacon RTQC Alarm

SRA: Search RTQC Alarm

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SD: Bit Pattern

21 20

ACE Off 0 0

ACE 1 1 0

ACE 2 0 1

ACE 3 1 1

MXRL: Maximum Run Length Discrimination On

MNRL: Minimum Run Length Discrimination On

ASA: Azimuth/Servo Alarm

NMO: Normal Map On

SMO: Sensitive Map On

WFO: WFMU On

WFA: WFMU Alarm

DRO: Dynamic Run Length On

HST: High Speed Timing

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CGM: Clutter-Gated MTI On

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SBC: Beacon **Channel(1=A, 0=B)**

CDA: CD Processing Alarm

OBA: On-Line Beacon Alarm

BO: $\frac{1}{2}$ NMI Beacon Offset

AIM: AIMS Alarm

CP: Circular Polarization

SBA: Standby Beacon Alarm

ORA: On-Line **RBPM** Alarm

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DC3: Data Channel 3 On

DC2: Data Channel 2 On

DC1: Data Channel 1 On

APPENDIX B(CONT'D)

d. The capability should be provided through the use of a **supervisory** keyboard entry and use of **EQARS** such that an individual may **be able** to slew out to a target symbol and obtain CD input data from that target **report**. If the target report is currently associated with **an** active track then the function should be capable of automatically updating **the** report **data(CD input data)** information **each** time the track correlates. **An** area **should be set aside** large enough that will be capable of containing **up** to but **not exceeding** a **total** of **ten(10)** reports which could consist of from **one(1)** to **three(3)** different tracks. CD data should be displayed as follows:

- (1). UT for untracked target.
- (2). No Data for no data.
- (3). Scans should be numbered consecutively.
- (4). After table which contains the **ten(10)** reports is full, capability should be provided to over-write oldest information.
- (5). Capability should be provided to selectively delete any or **all** of the tracks being **upadated**.

APPENDIX B(CONT'D)

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APPENDIX B(CONT'D)

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- (1). UT for untracked target.
- (2). No Data for no data.
- (3). Scans should be numbered consecutively.
- (4). After table which contains the **ten(10)** reports is full, capability should be provided to over-write oldest information.
- (5). Capability should be provided to selectively delete any or all of the tracks being **upadated**.

APPENDIX B(CONT'D)

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APPENDIX B(CONT'D)

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APPENDIX B(CONT'D)

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APPENDIX B(CONT'D)

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- (1). UT for untracked target.
- (2). No Data for no data.
- (3). Scans should be numbered consecutively.
- (4). After table which contains the **ten(10)** reports is full, capability should be provided to over-write oldest information.
- (5). Capability should be provided to selectively delete any or all of the tracks being **upadated**.

APPENDIX D(CONTD)

Class III(Cont'd):

SENSOR x BEACON CHANNEL B

SENSOR x CD PROCESSING ALARM

SENSOR x ON-LINE BEACON ALARM

SENSOR x ½ NMI BEACON OFFSET

SENSOR x AIMS ALARM

SENSOR x CIRCULAR POLARIZATION

SENSOR x STANDBY BEACON ALARM

SENSOR x ON-LINE RBPM ALARM

SENSOR x OUTPUT SERVICE

SENSOR x HPG ALARM

SENSOR x SYSTEM OVERHEAT

SENSOR x MILITARY TIMING ALARM

SENSOR x MIM ALARM

SENSOR x BEACON RTQC ALARM

SENSOR x SEARCH RTQC ALARM

SENSOR x RANGE ALARM

SENSOR x ACE OFF

SENSOR x ACE 1

SENSOR x ACE 2

SENSOR x ACE 3

SENSOR x MAX RUN LENGTH DISCRIMINATION ON

SENSOR x MIN RUN LENGTH DISCRIMINATION ON

SENSOR x AZIMUTH/SERVO ALARM

APPENDIX D(CONTD)

Class III(Cont'd):

SENSOR x BEACON CHANNEL B

SENSOR x CD PROCESSING ALARM

SENSOR x ON-LINE BEACON ALARM

SENSOR x ~~½~~ NMI BEACON OFFSET

SENSOR x AIMS ALARM

SENSOR x CIRCULAR POLARIZATION

SENSOR x STANDBY BEACON ALARM

SENSOR x ON-LINE RBPM A L A R M

SENSOR x OUTPUT SERVICE

SENSOR x HPG ALARM

SENSOR x SYSTEM OVERHEAT

SENSOR x MILITARY TIMING ALARM

SENSOR x MIM ALARM

SENSOR x BEACON RTQC ALARM

SENSOR x SEARCH RTQC ALARM

SENSOR x RANGE ALARM

SENSOR x ACE OFF

SENSOR x ACE 1

SENSOR x ACE 2

SENSOR x ACE 3

SENSOR x MAX RUN LENGTH DISCRIMINATION ON

SENSOR x **MIN** RUN LENGTH DISCRIMINATION ON

SENSOR x AZIMUTH/SERVO ALARM

APPENDIX D(CONTD)

Class III(Cont'd):

, SENSOR x BEACON CHANNEL B

SENSOR x CD PROCESSING ALARM

SENSOR x ON-LINE **BEACON** ALARM

SENSOR x ~~½~~ **NMI BEACON OFFSET**

SENSOR x AIMS ALARM

SENSOR x CIRCULAR **POLARIZATION**

SENSOR x STANDBY BEACON ALARM

SENSOR x ON-LINE **RBPM** ALARM

SENSOR x OUTPUT SERVICE

SENSOR x **HPG** ALARM

SENSOR x SYSTEM OVERHEAT

SENSOR x MILITARY TIMING **ALARM**

SENSOR x MIM ALARM

SENSOR x BEACON **RTQC** ALARM

SENSOR x SEARCH **RTQC** ALARM

SENSOR x RANGE ALARM

SENSOR x ACE OFF

SENSOR x ACE 1

SENSOR x **ACE 2**

SENSOR x **ACE 3**

SENSOR x MAX RUN LENGTH DISCRIMINATION ON

SENSOR x **MIN** RUN LENGTH DISCRIMINATION ON

SENSOR x AZIMUTH/SERVO ALARM

APPENDIX D(CONTD)

Class III(Cont'd):

, SENSOR x BEACON CHANNEL B

SENSOR x CD PROCESSING ALARM

SENSOR x ON-LINE **BEACON** ALARM

SENSOR x ~~½~~ **NMI** BEACON OFFSET

SENSOR x AIMS ALARM

SENSOR x CIRCULAR **POLARIZATION**

SENSOR x STANDBY BEACON ALARM

SENSOR x ON-LINE **RBPM** ALARM

SENSOR x OUTPUT SERVICE

SENSOR x **HPG** ALARM

SENSOR x SYSTEM OVERHEAT

SENSOR x MILITARY TIMING **ALARM**

SENSOR x MIM ALARM

SENSOR x BEACON **RTQC** ALARM

SENSOR x SEARCH **RTQC** ALARM

SENSOR x RANGE ALARM

SENSOR x ACE OFF

SENSOR x ACE 1

SENSOR x **ACE 2**

SENSOR x **ACE 3**

SENSOR x MAX RUN LENGTH DISCRIMINATION ON

SENSOR x **MIN** RUN LENGTH DISCRIMINATION ON

SENSOR x AZIMUTH/SERVO ALARM

APPENDIX D(CONTD)

Class III(Cont'd):

, SENSOR x BEACON CHANNEL B
SENSOR x CD PROCESSING ALARM
SENSOR x ON-LINE **BEACON** ALARM
SENSOR x ~~½~~ **NMI BEACON** OFFSET
SENSOR x AIMS ALARM
SENSOR x CIRCULAR **POLARIZATION**
SENSOR x STANDBY BEACON ALARM
SENSOR x ON-LINE **RBPM** ALARM
SENSOR x OUTPUT SERVICE
SENSOR x **HPG** ALARM
SENSOR x SYSTEM OVERHEAT
SENSOR x MILITARY TIMING **ALARM**
SENSOR x MIM ALARM
SENSOR x BEACON **RTQC** ALARM
SENSOR x SEARCH **RTQC** ALARM
SENSOR x RANGE ALARM
SENSOR x ACE OFF
SENSOR x ACE 1
SENSOR x **ACE 2**
SENSOR x **ACE 3**
SENSOR x MAX RUN LENGTH DISCRIMINATION ON
SENSOR x **MIN** RUN LENGTH DISCRIMINATION ON
SENSOR x AZIMUTH/SERVO ALARM

APPENDIX D(CONTD)

Class III(Cont'd):

, SENSOR x BEACON CHANNEL B
SENSOR x CD PROCESSING ALARM
SENSOR x ON-LINE BEACON ALARM
SENSOR x ½ NMI BEACON OFFSET
SENSOR x AIMS ALARM
SENSOR x CIRCULAR POLARIZATION
SENSOR x STANDBY BEACON ALARM
SENSOR x ON-LINE RBPM ALARM
SENSOR x OUTPUT SERVICE
SENSOR x HPG ALARM
SENSOR x SYSTEM OVERHEAT
SENSOR x MILITARY TIMING ALARM
SENSOR x MIM ALARM
SENSOR x BEACON RTQC ALARM
SENSOR x SEARCH RTQC ALARM
SENSOR x RANGE ALARM
SENSOR x ACE OFF
SENSOR x ACE 1
SENSOR x ACE 2
SENSOR x ACE 3
SENSOR x MAX RUN LENGTH DISCRIMINATION ON
SENSOR x MIN RUN LENGTH DISCRIMINATION ON
SENSOR x AZIMUTH/SERVO ALARM

APPENDIX D(CONTD)

Class III(Cont'd):

, SENSOR x BEACON CHANNEL B
SENSOR x CD PROCESSING ALARM
SENSOR x ON-LINE **BEACON ALARM**
SENSOR x ~~½~~ **NMI BEACON OFFSET**
SENSOR x AIMS ALARM
SENSOR x CIRCULAR **POLARIZATION**
SENSOR x STANDBY BEACON ALARM
SENSOR x ON-LINE **RBPM** ALARM
SENSOR x OUTPUT SERVICE
SENSOR x **HPG** ALARM
SENSOR x SYSTEM OVERHEAT
SENSOR x MILITARY TIMING **ALARM**
SENSOR x MIM ALARM
SENSOR x BEACON **RTQC** ALARM
SENSOR x SEARCH **RTQC** ALARM
SENSOR x RANGE ALARM
SENSOR x ACE OFF
SENSOR x ACE 1
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SENSOR x ACE 3
SENSOR x MAX RUN LENGTH DISCRIMINATION ON
SENSOR x MIN RUN LENGTH DISCRIMINATION ON
SENSOR x AZIMUTH/SERVO ALARM

APPENDIX D(CONTD)

Class III(Cont'd):

, SENSOR x BEACON CHANNEL B
SENSOR x CD PROCESSING ALARM
SENSOR x ON-LINE **BEACON ALARM**
SENSOR x ~~½~~ **NMI BEACON OFFSET**
SENSOR x AIMS ALARM
SENSOR x CIRCULAR **POLARIZATION**
SENSOR x STANDBY BEACON ALARM
SENSOR x ON-LINE **RBPM** ALARM
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SENSOR x AZIMUTH/SERVO ALARM

APPENDIX D(CONTD)

Class III(Cont'd):

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SENSOR x CD PROCESSING ALARM
SENSOR x ON-LINE **BEACON ALARM**
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SENSOR x STANDBY BEACON ALARM
SENSOR x ON-LINE **RBPM** ALARM
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SENSOR x MAX RUN LENGTH DISCRIMINATION ON
SENSOR x MIN RUN LENGTH DISCRIMINATION ON
SENSOR x AZIMUTH/SERVO ALARM

APPENDIX D(CONTD)

Class III(Cont'd):

, SENSOR x BEACON CHANNEL B
SENSOR x CD PROCESSING ALARM
SENSOR x ON-LINE **BEACON ALARM**
SENSOR x ~~½~~ **NMI BEACON OFFSET**
SENSOR x AIMS ALARM
SENSOR x CIRCULAR **POLARIZATION**
SENSOR x STANDBY BEACON ALARM
SENSOR x ON-LINE **RBPM** ALARM
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SENSOR x MILITARY TIMING **ALARM**
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SENSOR x RANGE ALARM
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SENSOR x ACE 1
SENSOR x ACE 2
SENSOR x ACE 3
SENSOR x MAX RUN LENGTH DISCRIMINATION ON
SENSOR x MIN RUN LENGTH DISCRIMINATION ON
SENSOR x AZIMUTH/SERVO ALARM

APPENDIX G(CONT'D)

- j. **Military** Timing Alarm
- k. System Overhead
- l. **HPG** Alarm
- m. Output Service
- n. AIMS Alarm
- o. CD Processing Alarm
- p. Standby Beacon Alarm
- q. On-Line **Beacon** Alarm
- r. Beacon Sector Tolerance
- s. Beacon Test Out
- t. Radar Test Out
- u. Radar Receiver Adapter Error Messages which result in disabling **RRA's**
such as:
 - (1) Disabling-due to **"NO DATA"**
 - (2) Disabling due to **"PARITY ERRORS"**
 - (3) Disabling due to **"INPUT TIMING"**
 - (4) Disabling due to **"OUT-OF-SYNC"**
 - (5) Disabling due to **"ILLEGAL MESSAGE"**
- v. **CDR fail**
- w. **CDR** capacity
- x. Disc subsystem failure

7. Contractor will insure **that** capability exists to be able to add to the number of alarm messages associated with **the** CDT alarm system.

APPENDIX G(CONT'D)

- j. **Military** Timing Alarm
- k. System Overhead
- l. **HPG** Alarm
- m. Output Service
- n. AIMS Alarm
- o. CD Processing Alarm
- p. Standby Beacon Alarm
- q. On-Line **Beacon** Alarm
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APPENDIX G(CONT'D)

- j. **Military** Timing Alarm
- k. System Overhead
- l. **HPG** Alarm
- m. Output Service
- n. AIMS Alarm
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 - (4) Disabling due to **"OUT-OF-SYNC"**
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- w. **CDR** capacity
- x. Disc subsystem failure

7. Contractor will insure **that** capability exists to be able to add to the number of alarm messages associated with **the** CDT alarm **system**.

APPENDIX G(CONT'D)

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- k. System Overhead
- l. **HPG** Alarm
- m. Output Service
- n. AIMS Alarm
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- p. Standby Beacon Alarm
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 - (3) Disabling due to **"INPUT TIMING"**
 - (4) Disabling due to **"OUT-OF-SYNC"**
 - (5) Disabling due to ****ILLEGAL MESSAGE***
- v. **CDR fail**
- w. **CDR** capacity
- x. Disc subsystem failure

7. Contractor will insure **that** capability exists to be able to add to the number of alarm messages associated with **the** CDT alarm **system**.

APPENDIX G(CONT'D)

- j. **Military** Timing Alarm
- k. System Overhead
- l. **HPG** Alarm
- m. Output Service
- n. AIMS Alarm
- o. CD Processing Alarm
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 - (4) Disabling due to **"OUT-OF-SYNC"**
 - (5) Disabling due to ****ILLEGAL MESSAGE"**
- v. **CDR fail**
- w. **CDR** capacity
- x. Disc subsystem failure

7. Contractor **will** insure **that** capability exists to be able to add to the number of alarm messages associated with **the** CDT alarm system.